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P R E F A C E.

SINCE the publication of the last volume of Transactions, the Society has been deprived, by death, of that personage, (the first in rank, after the blood royal, of the British Nobility,) who, during the long series of twenty-two years, has held the office of PRESIDENT in this Society. As a testimony of respect for his memory, a portrait of this Nobleman is prefixed to the present volume. The chair which had thus become vacant, has been filled by an illustrious Member of our Royal Family, who, in accepting the Presidency, has thus given a public pledge that the Encouragement of the ARTS, COMMERCE, and MANUFACTURES of the country, does not misbecome the highest patronage ; who is sensible, that, in personally distributing the Medals and other honorary rewards given to merit, often in the lower ranks of life, he is thus superadding to the direct encouragement conferred by the vote of the Society, that collateral and in many cases equally satisfactory gratification, arising from the high rank of the personage through whose hands the reward is immediately received.

Not only the highest official situation in this Society, but also the most effective one, namely, the Secretaryship, has, by the common lot of human nature, become recently vacant. Exhausted by a long and painful disorder, but preserving to the last his unintermitting zeal for the welfare of the Society, Dr. CHARLES TAYLOR has closed his services, and only lives in the regrets and grateful recollections of his friends. Those who had the best opportunities of knowing him are the best qualified duly to appreciate his entire devotedness to the Society during the sixteen years of his connection with it. His official duty had become his ruling passion, his pride, and his delight. May his successor acquire equal claims to the support and respect of the Society.

The ENGRAVINGS, in illustration of the subjects treated of in the present volume, are numerous and of distinguished merit; entirely worthy of the place which they hold in the Transactions of a Society, one of the leading objects of which is the Encouragement of the FINE ARTS.

On the national subject of raising oak timber, her Grace the DUCHESS of RUTLAND has communicated some very important information. It appears from experiments on a large scale, made under the direction of her Grace, that the most advantageous method of cultivating oaks, (whether the acorns are sown at once on the ground they are intended to occupy,

or

or the more usual way of planting seedlings be adopted,) is to cultivate the ground between them in order to keep down the growth of weeds. For this purpose, no crop has been found so advantageous as potatoes, which are to be continued on the ground, year after year, till the trees themselves have grown sufficiently to become, without further assistance, a smothering crop. It appears, also, that the intermixture of other kinds of trees is decidedly injurious to the progress of the oaks, which are very liable to be overgrown and stifled by the vicinity of trees which make more rapid progress than themselves.

Plantations of forest-trees of considerable extent have also been made by WM. CONGREVE, Esq.; by WM. MEEK, Esq.; and by BACHE THORNHILL, Esq.; to all of whom Medals have been awarded.

For a very important communication in another department of rural œconomy, the Society has adjudged a Gold Medal to JOHN CHRISTIAN CURWEN, Esq. V.P. This gentleman, to the publication of whose successful practice in agriculture the country is already much indebted, has, in the present paper, exhibited the particulars of a completely successful experiment, showing the œconomy and practicability of stall-feeding cattle from a very early age. By means of clover, turnips, straw, and steamed chaff, with scarcely any
hay

hay, thirty-three calves have been reared without any casualty, several of them at a year old weighing between sixty and seventy stone

J. S. HALL, Esq. has communicated the successful result of his method of protecting nearly 1200 Merino sheep from the inclemencies of our fickle climate.

In the Class of CHEMISTRY, Mr. G. FIELD'S Filtering Apparatus, and his Stove for drying by a gentle heat and a quick circulation of air, will, no doubt, be properly esteemed by those manufacturers who are in the habit of preparing coloured lakes and other delicate pigments.

Mr. RYAN'S paper, describing his new method of ventilating collieries, is earnestly recommended to the notice of the proprietors and superintendants of these most useful and important of all mines; but which, in the way they have hitherto been worked, have demanded a prodigal expenditure of human life. The degree of success which has hitherto attended Mr. RYAN'S practice is a complete justification, in the opinion of the Society, of the liberal reward which they have bestowed on the inventor; and their earnest wish is, that Mr. R. may have an opportunity of bringing to the fair test of experiment his entire system.

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The Medal awarded to Dr. CLANNY for his Safety Lamp, is due to him, not only for the practical merit of his invention, but for the perseverance with which, for many years, and under many discouragements, he has laboured with unwearied and disinterested humanity in diminishing the hazard attendant on mining operations in the coal districts.

In the Class of POLITE ARTS, Mr. C. PYE's preparation of charcoal, whereby it is made to answer the purpose of black chalk for drawing; Mr. WM. CUBITT's invention of an instrument for drawing Ellipses; Mr. C. WEST's improved Parallel Rule; Mr. E. TURRELL's new Drawing-Board and T. square; Mr. ALLASON's instrument for representing natural Objects in true Perspective; and Mr. THOS. BARBER's Angulometer for laying down and measuring Angles, will, it is hoped, facilitate the work of the artist and contribute, in their several departments, to that accuracy and precision of execution by which the present race of artists are so remarkably distinguished even from their immediate predecessors.

In the Class of MANUFACTURES, the Communications of Mr. BUCK and of Mr. FLOWER are interesting, as showing that real Merino wool of English growth is beginning to supply our domestic manufactures of superfine cloth.

Mr.

Mr. SCHORRER's machine for blocking straw-hats has the merit of expediting the process, and therefore of diminishing the expence in a manufacture which has grown up in a single generation to an object of even national importance.

In the Class of MECHANICS, Sir HOME POPHAM's Telegraph and Marine Vocabulary ; and the Rev. JAMES BREMER's Day and Night Telegraphs will, in various ways, contribute to the improvement of that curious and interesting art, by which verbal communications are transmitted from place to place with a rapidity which only a few years ago would have been considered as wholly impracticable.

Lieut. SHULDHAM, of the Royal Navy, has made an improvement in the construction of Blocks and Pullies ; and, by a very simple contrivance, has added greatly to the working power of the Capstan.

The late MAJOR LE HARDY has invented an apparatus for effecting with more certainty and precision than heretofore, a communication between stranded vessels and the shore.

To Mr. J. DICKSON the public are indebted for a simple and speedy method of raising and lowering the propelling-wheels

wheels of steam-boats ; and Mr. T. PERRING has constructed a set of tables for the expeditious correction of the observed longitude, and the deduction from days' works at sea of the dead reckoning.

Mr. JAMES ALLAN's Theodolite, and his method of making accurate screws for mathematical purposes, not only do him credit as a practical artist, but will contribute to the further improvement of the art itself;—that beautiful and important art, the construction of instruments for the mensuration of space whether terrestrial or celestial, without which the sublime edifice of modern astronomy could scarcely have been founded.

The difficulties often experienced by the surgeon in conveying ligatures round deeply seated arteries, and in extirpating polypi, have induced Mr. WM. BREMNER to invent instruments for that purpose, which the Society has rewarded, in the hope that they will prove effectual.

The mortality and disease attendant on those employed in pointing Needles, arising partly from accidents but principally from inhalation of the fine dust produced in this part of the process, have long engaged the attention of the Society. The machine invented by Mr. THOMAS ROBERTS, of Dumfries, with the design of obviating the sacrifice of hu-

man

man life in this necessary manufacture, though perhaps not perfect, is certainly calculated greatly to diminish the danger of the employment.

Dr. CARTWRIGHT's Traversing Apparatus, whereby the usual circular motion of a horse in working a mill is exchanged for a rectilinear course; and the CHEVALIER BAADER's circular Motion, applied to raising water, will add to the resources of the practical engineer.

Mr. T. PERRY's Instantaneous Calculator is an ingenious and useful application of the known principles of mechanical calculation, as exemplified in sliding rules, &c. to tables of interest, &c.

Mr. BRABY's fire escape, Mr. PARKER's door spring, and Mr. GOODWIN's probang, complete the list of articles in the Class of Mechanics, and appear well calculated to answer their respective objects.

In the Class of COLONIES AND TRADE, Mr. HOBLYN's Rice-Mill is a well constructed engine, which has already produced a most beneficial effect on the culture of this important article of human food in the island of Ceylon, and will, no doubt, be extensively adopted in our other East India Settlements.

Lf.

LT. COL. BOUCHETTE's Map of Canada does credit to his abilities as a surveyor, and is a public pledge of his being duly qualified for the office to which he has recently been appointed by his Majesty's Government.

The Society take the present opportunity of returning their thanks to the different public bodies and individuals who have honoured them with presents during the Session, the particulars of which are noticed near the close of the present Volume. Without presuming to direct in what channels the liberality of the friends to this institution shall flow, it may be stated, that such contributions as may put the Society in possession of a complete collection of all the publications of any value on the application of mathematics to practical mechanics will be especially acceptable.

The Society desire it to be clearly understood, that, as a Body, they are not responsible for any opinion or representation of Facts contained in the following pages.
